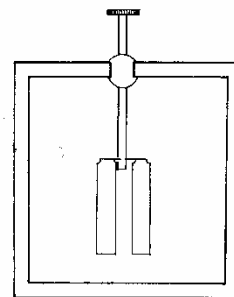


Science 9 Electroscope Lab
Detecting Static Charge Using an Electrostatic

Procedure:

Part A: INDUCED CHARGE SEPARATION:

1. Look at the sketch of how the leaves in the electrostatic look before you do any charging. Your electrostatic should look similar the one shown. Sketch the leaves and a nearby ebonite rod along with the charges on each (as shown on p. 416 of your text). Label this "DIAGRAM A" under the diagram.
2. Charge the black ebonite rod as usual and without touching it to the ball bring the rod close to the ball on the top of the electrostatic and observe what happens to the leaves. Draw a sketch of the leaves while the rod is held near but not touching the ball on the electrostatic. Label this "DIAGRAM B."
3. Move the rod away and draw what happens to the leaves. Label this "DIAGRAM C." See [animation](#).



Part B: CHARGING BY CONTACT:

4. Touch the ball of the electrostatic with your hand. Your electrostatic should look similar to the one shown above.
5. Charge the black rod again and bring it near and then touch it to the ball on the electrostatic. After touching the rod to the ball on the electrostatic, move the rod away from the electrostatic. Draw before (before bringing the rod towards and touching) and after (after the rod has touched and then been removed) pictures of what happens to the leaves. Label these "DIAGRAM D" and "DIAGRAM E."
6. Touch the ball on the electrostatic with your hand and get the leaves to return to normal (no charge).

Part C: CHARGING BY INDUCTION:

7. Your electrostatic should look similar the one shown above.
8. Have one of your partners place their finger on the ball of the electrostatic. Charge the black rod as usual and without touching it to the ball, and with your partner's fingers still on the ball, bring the rod close to the electrostatic and hold it there. Observe what happens to the leaves. Draw a sketch of the leaves while the rod is held near but not touching the ball on the electrostatic while the finger is touching the ball on the electrostatic. Label this "DIAGRAM F."
9. Now remove the finger from the ball.
10. Now move the rod away. Draw what the leaves look like after this procedure. Label this "DIAGRAM G."

Discussion Questions

1. What are three ways to produce a static charge?
2. Why were you instructed to touch the ball of the electrostatic between each procedure?
3. Define an 'induced charge separation'. (p. 415) Explain the results of **Part A**.
4. What charge was left on the leaves of the electrostatic in Part B? How do you know?
5. For Part C, explain why the electrostatic behaved the way it did.